

KHOLECHEK, L., inzh.; KHRISTOV, M., inzh.; KOSTOV, V., inzh.

International Symposium on Unwoven Textiles. Tekstilna  
prom 13 no. 1:39-40 '64.

KHRISTOV, Metodi

Mechanized harvesting of vetch hay or mixed vetch and  
barley hay. Izv mekh selsko stop BAN 4 63-74 '63.

KHRISTOV, MIHAIL

Khristov, Mihail Prilozhna botanika; lektsii cheteni na studentite po kulturno inzhenerstvo. Sofiya, Nauchni tesli (1947) 226 p. (Duzhavana politehnika, no. 34)  
(Lectures on applied botany for university students.)

SO: MONTHLY LIST OF EAST EUROPEAN ACCESSIONS, L. C., VOL. 3, NO. 1, Jan. 1954, Uncl.

KHRISTOV, MIKHAIL A.

Khristov, Mikhail A. Furazhno proizvodstvo s osnovite na botanikata; lektsii za studenti po veterinarna meditsina. (Sofiya) Nauka i izkustvo (1951) 260 p. (Universitetska literatura) (Forage production according to the principles of botany; lectures for students of veterinary medicine.)

SO: MONTHLY LIST OF EAST EUROPEAN ACCESSIONS, L. C. Vol. 3 No. 1 Jan '54 Uncl.

KHRISTOV, M.

Fodder in specially prepared trenches. p. 15.

Vol. 6, no. 8, Aug. 1955  
MASHINIZIPANO ZEMEDELIE  
Sofiya, Bulgaria

So: Eastern European Accession Vol. 5 No. 1 Jan. 1956

KHRISTOV, M.

KHRISTOV, M. Mechanizing siloing. p.12.

Vol. 7, no. 5, May 1956, MASHINIZIRANO ZEMEDELIE, SOFIYA, BULGARIA.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, NO. 10,  
Oct. 1956.

KHRISTOV, M.

Increasing production of the straw-cutting machine. p. 30.  
KOOPERATIVNO ZEMEDELIE, Sofiya, Vol. 11, no. 4, Apr. 1956.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 6 June 1956,  
Uncl.

KHRISTOV, M.; LAZAROV, V.

Ensilaging above ground p. 26.

(Kooperativno Zemedelie, Vol. (12) no. 6, June 1957. Sofia, Bulgaria)

SO: Monthly List of East European Accessions (EEAL) IC, Vol. 6, no. 10, October 1957. Uncl.



KHRISTOV, M.

Results and conclusions from the botanical analysis of samples of hay from certain regions of Bulgaria. p. 79.

IZVESTIIA. Sofia, Bulgaria, Vol. 10, 1959.

Monthly List of East European Accessions (EEAI), LC, Vol. 9, No. 2, February, 1960. Uncl.

GAIDAROV, N.; MASLINKOV, Iv.; MONOV, Iv.; KHRISTOV, M.; KHARALANOV, St.;  
DIMITROV, I.

Mechanized harvesting of maize. Izv mekh selsko stop BAN  
1:115-132 '61.

KHRISTOV, M.

Mechanized hay harvesting in the mountains. Izv mekh selsko  
stop BAN 1:133-145 '61.

KHRISTOV, Mikhail; PALAVEEVA-KOVACHEVSKA, Maria

Observations on the development and productivity of pure  
alfalfa as compared to grass mixtures. Selskostop nauka 2  
no.1:32-43 '63.

DASKALOV, Khr., akad.; STOEV, Kun'o; BOGDANOV, Vasil, st. n. sutr.;  
KHRISTOV, Metodi, st. n. sutr.; KHADZHILOV, Asen A., st. nauchen  
sutrudnik; DECHEV, Georgi, ml. n. sutr.; BLIZNAKOV, Georgi, prof.;  
PENKOV, Boian, ml. n. sutr.; POPOV, Rumen

Science on the offensive for progress. Nauka i tekhn. mladezh 15  
no.7/8:6-10, 56-57 J1-Ag '63.

1. Zam. predsedatel na ASN (for Daskalov). 2. Glaven nauchen  
sekreter na ASN (for Stoev). 3. Nauchen sekretar na ASN (for  
Bogdanov). 4. Institut za mekhanizatsiia na selskogo stopanstvo  
(for Khristov). 5. Direktor na Instituta po neorganicheska i obshta  
khimiia pri BAN (for Bliznakov). 6. Predsedatel na Komisiata za  
nauka i tekhnicheski progres pri TsK na DKMS (for Popov).

KHRISTOV, M.A.; NIKOLOV, Khr.

Development of the embryonic sac in certain species of the  
Poa genus. Izv Inst bot BAN 7:201-223 '60.

KHRISTOV, M.A.; KRUSHEVA, K.; NIKOLOV, Khr.

Organogenesis of *Nardus stricta* L. Izv Tsentral lab genet 1:139-148 '63.

KHRISTOV, Marin Ivanov, inzh., nauch. sutr.

Knitting of woolen materials for outer garments on circular  
frame. Trud Inst tekstil prom 2:127-137 '62.



KHRISTOV, N.; VIKTOROV, St.; NIKOLOV, G.

Introduction of metallic head cores for molds, a new way  
in casting. Ratsionalizatsiia 13 no.11:17-18 '63

AM4024709

BOOK EXPLOITATION

B/

Khristov, Nikola T. (Engineer); Zakhariev, Kiril S. (Engineer)

Devices for automatic control and regulation of industrial processes. v. 1: Devices for measurement and control (Ustroystva za avtomatichen kontrol i regulirane na proizvodstvenite protsesi. t. 1: Ustroystva za izmervane i kontrol) Sofia, "Tekhnika," 62. 0405 p. illus., biblio, graphs. 2583 copies printed.

TOPIC TAGS: instrumentation, automatic control instruments, temperature measurement, pressure measurements, vacuum measurement, flow measurement, level measurement, heat content measurement, humidity measurement, dust content measurement, stream control, feed water control, boiler control

PURPOSE AND COVERAGE: The book deals with measurement and control methods used in manufacturing processes, and with the apparatus and circuits used for this purpose. The construction of most types of

Card 1/3

AM4024709

apparatus is described, and industrial applications and test and design procedures are given. The book also contains a complete procedure for throttling and control devices. It is for engineers and technicians engaged in operation, erection, and design of measurement and control apparatus for industrial enterprises and power generating stations, and can also be used by technical personnel in the enterprises.

TABLE OF CONTENTS [abridged]:

Foreword - - 3

- A. Temperature measurements - - 5
- B. Pressure and vacuum measurements - - 101
- C. Fluid flow and fluid quantity measurements - - 161
- D. Level measurements - - 295
- E. Control of gas composition and gas heat content.

Card 2/3

KHRISTOV, P.

For a better knowledge. Radio i televizija 12 no.4:101 '63

KHRISTOV, PURVAN

Khristov, Purvan Parkoustroistvo i parkova tekhnika. Odbreno kato uchebnik za srednite i prakticheskite zemedelski uchilishta. Sofiya, Zemizdat, 1951. 296 p. (The layout and care of Parks; a textbook)

SO: The Monthly List of East European Accessions L C. Vol 3 No. 1 Jan. '54 Uncl.

KHRISTOV, P.

Regional competition in radiotelegraphy at Lovech. Radio i  
televiziia 12 no.8:228 '63.

KHRISTOV, P.

KHRISTOV, P. A case of a very intensive rainfall in Bulgaria. p. 45  
No. 3, 1956 KHIDROLOGIIA I METEOROLOGIIA. Sofia, Bulgaria

SOURCE: East European Accessions List (EEAL) Vol. 6, No. 4 April 1957

KHRISTOV, P.

"Strong winds in Bulgaria."

KHIDROLOGIJA I METEOROLOGIJA., Sofia, Bulgaria., No. 6, 1958

Monthly list of EAST EUROPEAN ACCESSIONS (EEAI), LC, Vol. 8, No. 7, July 1959, Unclass



KHRISTOV, P.

Rationalization in the enterprises of the city of Tolbukhin. p. 17.

RATSIONALIZATSIIA. Vol. 6, no. 2, Feb. 1956

Sofia, Bulgaria

SOURCE: East European Accessions List (EEAL) Library of  
Congress, Vol. 6, No. 1, January 1957

DOBREV, Ia. ; MISHEV, P. ; SHOPOV, N. ; KHRISTOV, P.

On the treatment of cholecystitis according to clinical material  
from the period of 1954-1959. Khirurgia, Sofia 13 no.2-3:208-211 '60.

1. Iz Katedrata po fakultetska khirurgia pri VMI "I. P. Pavlov"  
- Plovdiv.

(CHOLESCYSTITIS surg.)

MISHEV, P.; SHOPOV, N.; KHRISTOV, P.

Changes in the protein picture in acute inflammatory conditions of the gallbladder and bile ducts. Khirurgia, Sofia 13 no.2-3: 212-213 '60.

1. Iz Katedrata po fakultetska khirurgia pri VMI "I.P.Pavlov"  
- Plovdiv.

(CHOLECYSTITIS blood)  
(BLOOD PROTEINS)

KHRISTOV, R.

Jubilee Scientific Session of the Department of Agricultural  
Sciences. Spisani~~e~~ BAN no.4:115-125 '59. (EEAI 9:11)  
(Bulgaria--Agriculture)

KHRISTOV, R., dots.

Origin and age of the Lyulin conglomerate. Godishnik Min geol inst  
8:391-404 '61-'62 [publ. '63]

KHRISTOV, R. N.

Khristov, R. N. Geologiya za VI klas na stroitelnite tekhniki. Sofiya (Narodna prosveta) 1952 175 p. (Geology, a textbook for the 6th year of technical schools. Titus.)

SO: Monthly List of East European Accessions, L. C. Vol. 3 No. 1. Jan '54 Uncl.

KRISTOV, R.

TECHNOLOGY

Vol. 3, no. 1/2, 1955/56 (published 1957).

Kristov, R. Geology of the region east of the Luda Yana River. p. 1

Monthly Index of East European Accessions (EEAI) LC, Vol. 8, No. 1.  
Jan. 1959.

KHRISTOV, R.

TECHNOLOGY

Vol. 3, no. 1/2, 1955/56 (published 1957).

Khristov, R. Geologic and geomorphological exploring of the Zheleznitsa-Bistritsa region together with the east and north slopes of the Vitosha Mountains. P. 211.

Monthly Index of East European Accessions (EEAI) LC, Vol. 8, No. 1.  
Jan. 1959.



KHRISTOV, Radoslav N.

Origin of the hills near the village of Gorublyane. Prir i znanie  
14 no.3:20-22 '61. (KEAI 10:7)  
(Bulgaria--Geology)

KHRISTOV, Radoslav N.

Glacial traces in the valley of the Struma River. Prir i  
znanie 15 no.1:16-18 Ja '62.

KHRISTOV, R., dots. k.t.n.

Geology of the region between the Yantra and the Trevnenska rivers.  
Godishnik Min geol inst 9:189-206 '62-'63[publ. '64].

CHRISTOV, S.M.

Christov, S. Conclusions from the work of coal enterprises during 1954 and future tasks. p.5. MINNO DELO. Sofiya. Vol. 10, no. 1, Jan./Feb. 1955.

SO: Monthly List of the East European Accession (EEAL) LC. Vol. 4, no. 10, Oct. 1955. Uncl.

KHRISTOV, S.

Conclusions from the work of coal enterprises during 1954 and future tasks. p. 5.  
MINNO DELO, Sofiya, Vol. 10, no. 1, Jan./Feb. 1955.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, no. 10, Oct. 1955,  
Uncl.

KRISTOV, ST.

Gorski transport. Sofia, Zemizdat, 1957. 884 p. [Forest transportation;  
a university textbook. illus., bibl., diags., graphs, tables ]

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 10,  
Oct. 58

KHRISTOV, St.

Application of the law of transfiguration to quadripoles.  
Gedishnik Min geol inst 7:289-302 '60/'61 [publ. '62].

CHRISTOV, S. [Khristov, S.]; PANGAROV, N.; PAVLOV, D.

Overvoltage of hydrogen in cubic cobalt. Doklady BAN 15 no.5:511-514 '62.



CHRISTOV, S. [Khristov, S.]; RAJCEVA, T. [Raicheva, T.]

Hydrogen overvoltage in hard and liquid gallium depending on temperature. Doklady BAN 15 no.5:515-518 '62.

1. Lehrstuhl für physikalische Chemie und Electrochemie am  
Chemisch-Technologischen Institut, Sofia.

KHRISTOV, S.

Dimensions of wire cables suspended at two ends for transportation lines. p. 22  
(TEZHKA PROMISHLENOST. Vol. 4, No. 3, 1955)

SO: MONTHLY List of East European Accession, (EEAL), LC, Vol. 4, No. 9,  
Sept. 1955, Uncl.

KHRISTOV, S.

KHRISTOV, S. Equivalent circuits of alternating current. p.11.

Vol. 5, no. 2, Mar./Apr. 1956, TEKHNIKA, SOFIYA, BULGARIA.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, no. 10,  
Oct. 1956.

KHRISTOV, S.

"Method of reciprocal circuits for direct and alternating current."

ELEKTROENERGIJA, Sofia, Bulgaria, Vol. 9, no. 10/11, Oct./Nov. 1958.

Monthly List of East European Accessions Index (EEAI), The Library of Congress, Volume 8, No. 8, August 1959.

Unclassified

KHRISTOV, S.

Electric invariability of circuits for alternating and direct current and the method of repeated circuits. p. 129.

GODISHNIK. Minno-geolozhki institut. Sofia, Bulgaria. Vol. 5, no. 1, 1957/58 (published 1959).

Monthly List of East European Accessions (EEAI) LC, Vol. 9, No. 2, Feb. 1960.  
UNCL

KHRISTOV, S.

TECHNOLOGY

Vol. 3, no. 1/2, 1955/56 (published 1957).

Khristov, S. Method of equivalent chains in alternating current.  
p. 203.

Monthly Index of East European Accessions (EEAI) LC, Vol. 8, No. 1.  
Jan. 1959.

KHRISTOV, Stefan B., inzh.

Reconstruction of existing tunnels in connection with the  
electrification of Bulgarian railroads. Stroitelstvo 11 no.4:  
17-21 J1-Ag '64.

KHRISTOV, Simeon

"Technical and economic problems of price fixing for coals"  
by R. Radev i V. Balev. Reviewed by Simeon Khristov. Trud  
tseni 5 no. 9: 82-86 '63.



KHRISTOV, ST.

Quartz Crystal Control of Variable Range (Quartz Stabilizers).  
Radio (Radio), #8:19:Aug 54

KHRISTOV, S.

Bulgaria/Diseases of Farm Animals. Diseases Caused by Viruses and Rickettsiae -1

Abstr Jour : Vet Zhur-Biol., No 1, 1958, 2725

Author : Emerdzhiev Boyan, Rusev Khristo, Boachev Nikola, Khristov Stefan, Matyeva Vera

Inst : Not given

Title : Contemporary Position Concerning the Problem of Specific Immunogenic Prophylaxis of Swine Cholera

Orig Pub : Velikostan. Lis't. 1956. 1, No 5, 272-285

Abstract : It has been proposed that crystal-violet vaccine should be administered in decreased doses (instead of five and ten milligrams, one and two milligrams respectively) with the help of a stimulator. Into the composition of the latter enter caffeine and an alum increasing substance, which increases the period of retention

Card 1/3

Bulgaria/Diseases of Farm Animals. Diseases Caused by Viruses and Rickettsiae -1

Abstr Jour : Vet Zhur-Biol., No 1, 1958, 2725

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000722330007-7"

Abstract : and thus prolongs the influence of the vaccine on the central nervous system. As a result, one injection of caffeine may maintain a high reaction capacity of the organism for a period of 15 days. Hence, a decreased dose of crystal-violet vaccine administered on a background of caffeine is capable of causing the establishment of immunity which does not differ in its intensity from the one obtained as a result of the administration of the usual dose. The intensity of immunity is significantly lower when the crystal-violet vaccine is administered intracutaneously than when it is administered subcutaneously. A new method of simultaneous vaccination against swine cholera has been worked out (simultaneous administration of hyperimmunized serum and

Card 2/3

BULGARIA / Cultivated Plants. Potatoes, Vegetables, Melons.

M-4

Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 58615

Author : Khristov, Stoyan

Inst : Not given

Title : New Pepper Varieties

Orig Pub : Ovoshcharstvo i gradinarstvo, 1957, No 9, 32-36

Abstract : No abstract given

Card 1/1

70

MIKHOV, Atanas; KHRISTOV, Stoyan [Kh; VINNITSKIY, S. [Vinnits'kiy, S.],  
red.; MOICHANOVA, T., tekhn. red.

[From the practices of Bulgarian vegetable growers] Z dosvidu  
bolgars'kykh ovochivnykiv. Odesa, Odes'ke knizhkovye vyd-vo,  
1960. 66 p. (MIRA 15:7)  
(Bulgaria—Vegetable gardening)

BULGARIA/Human and Animal Physiology - (Normal and Pathological). T  
Respiration.

Abs Jour : Ref Zhur Biol., No 4, 1959, 17511

Author : Tsanev, B., Khristov, St., Kanazirski, P.

Inst : Medical Institute, Bulgarian Academy of Sciences.

Title : Bronchspirometry (Method).

Orig Pub : Izv. Med. in-ti Bolg. AN, 1957, kn. 14, 407-432

Abstract : No abstract.

Card 1/1

- 50 -

TSANEV, B.; KHRISTOV, St.; KANAZIRSKI, P.

Bronchspirometry; methods. Izv. Mikrob. inst., Sofia no.8:407-432  
1957.

1. Sanatorium za grudobolni iskrets na sgnadt gl. lekar: D-r S. Simeonov.  
(RESPIRATION, funct. tests  
bronchspirometry, technic & diag. value (Bul))

TSANEV, B.; KHRISTOV, St.; KANAZIRSKI, P.

Advantages and disadvantages of bronchspirometry. Suvrem. med., Sofia  
8 no.8:64-70 1957.

1. Iz sanatoriuma I skreta na SGMS. Gl. lekar: S. Simeonov.  
(RESPIRATION, funct. tests  
bronchspirometry, evaluation)

KHRISTOV, St.; BELOVSKI, Al.; KOSTOV, T.

Postoperative atelectasis in surgical treatment of tuberculosis.  
Khirurgia, Sofia 10 no.10:905-912 1957.

1. Sanatorium "Iskrets" Gl. lekar: S. Simeonov.  
(PNEUMONECTOMY, compl.  
atelectasis in pulm. tuberc.)  
(ATELECTASIS, etiol. and pathogen.  
pneumonectomy in pulm. tuberc.)

**KHRISTOV, S.**

Invisible cavities in the pulmonary parenchyma & their diagnosis by bronchography. Suvrem. med., Sofia 9 no.6:56-62 1958.

1. Iz sanatoriuma Kskrets pri SOHS (Glaven lekar: Ior. Popov).  
(TUBERCULOSIS, PULMONARY, pathol.  
cavitation, bronchographic diag. of so-called invisible  
cavities (Bul))



KANAZIRSKI, P.; KHRISTOV, St.; STANEV, Khr.

On inflammatory lesions of the middle pulmonary lobe. Suvrem.med.,  
Sofia no.11:42-50 '59.

1. Is sanatorijum "Iskreta" pri SOHS. Gl.lekar: Iord. Popov.  
(ATELECTASIS)

S/081/61/000/024/042/086  
B117/B147

AUTHORS: Khristov, St., Gudev, N.

TITLE: Corrosion of the reinforcement in reinforced concrete

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24, 1961, 311-312,  
abstract 24I250 (Tr. N.-i. stroit. in-t, v. 3, 1958 (1960),  
237-252)

TEXT: Various factors were examined as to their effect upon the rate of reinforcement corrosion in reinforced concrete, e.g., concrete composition, water-cement ratio, thickness of protective layer, concrete permeability to air, concrete porosity, relative moisture, and quality of reinforcement metal. Various types of ordinary and low-alloy steel and different concrete compositions were examined. The results were evaluated by different methods, e.g., by the visual method and by measuring the electric resistance of the sample. During the tests, the samples were kept both in air of varying humidity and in water of different compositions. The effect of TETs ash additives was also examined. It was established that under normal conditions the reinforcement was well protected against

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Card 1/2

Corrosion of the reinforcement ...

S/081/61/000/024/042/086  
B117/B147

corrosion by concrete made from cement 300, in which the water-cement ratio did not exceed 0.60 and the concrete layer above the reinforcement was 1.5 cm thick. The "shell" method was recommended for quick tests. In this case, a cavity is provided inside the samples and filled with the required solution. [Abstracter's note: Complete translation.] ✓

Card 2/2

NIKOLOV, R., dots., d-r; BALASHEV, Ang., inzh.; KHRISTOV, St., inzh.;  
PARGOVA, Iv., inzh.

Experimental studies of the electric truck EBB 2002 B. Mashinostroene  
10 no.10:4-6 0 '61.

ZHELEY, VI.; KHRISTOV, St.

Changes in the cells of the chick embryo tissue cultures infected  
with various strains of the pseudorabies virus (Fujasaky's disease).  
Izv. Vet inst virus 18111-123 '63

BONCHEV, N.; KHRISTOV, St.

Experiments for the preparation of the adsorbate vaccine against  
the swine plague with the lapinized Rovac virus. Izv Vet inst  
virus 1:153-156 '62

BONCHEV, N.; KHRISTOV, St.; ANDREEV, I.

Isolation and cultivation of the pig and calf enteroviruses  
in the tissue cultures. Izv Vet inst virus 2:19-24 '63

Preparation of a bivalent serum against the foot-and-mouth  
and the Aujeszky's diseases. Ibid. 281-85 '63

BULGARIA

KHRISTOV, Dr. St., Veterinary Institute of Infectious and Parasitic Diseases, Sofia

'Aujeszky's Disease in Calves Up to One Month Old'

Sofia, Veterinarna Sbirka, Vol 63, No 3, 1966, pp 11-14

Abstract: Cases of Aujeszky's disease in calves up to one month old were observed in Bulgaria in 1964. The disease could be transmitted to rabbits. Virus strains that were isolated from calves with symptoms of encephalitis and grown in tissue cultures reacted with Aujeszky disease hyperimmune serum from the Antiplague Institute in Vratsa and with calf antiserum to the strains. Calves could be infected with a strain grown in a tissue culture. Injections of antiserum in to calves had a prophylactic effect. It was established that adult

1/2



CA

Quantum mechanics of the electrochemical polarization of metals. St. G. Khristov (Univ., Sofia). *Compt. rend. acad. bulgare sci., Sci. math.* 68 no. 1, 42-6 (1944) (in German); cf. *C.A.* 43, 8284d. —An equation is derived yielding a relationship between cathode current and overvoltage which becomes linear for small values, and logarithmic for large values of the overvoltage. James L. Lauer

KRISTOV, S.

KHRISTOV, S. Various methods by which the Law of the Conservation of  
Energy is supported. p. 231 Vol. 5 Jan./Dec. 1955  
IZVESTILA SERIA FIZICHESKA. Sofia, Bulgaria

SOURCE: East European Accessions List (EEAL) Vol. 6 No. 4 April 1957

KHRISTOV, S. G.

21  
27  
Effect of the crystal structure of chromium on the hydrogen overvoltage. I. Hydrogen overvoltage of cubic chromium in weak acid and weak alkali solution. N. A. Pargamov and S. G. Khristov. *Compt. rend. acad. bulgare sci.* 9, No. 3, 17-20 (1966) (in German).—The expts. were made in a 0.1N KCl soln. at  $20 \pm 0.5^\circ$ . The c.d.  $i = 1.10 \times 10^{-4}$  to  $3.10 \times 10^{-4}$ , from  $1.10 \times 10^{-4}$  to  $1.10 \times 10^{-4}$  amp./sq. cm. was used. At the higher c.d.s. the equation  $\eta = a + b \log i$  holds. For pH values 2.50-4.18  $b$  varies between 0.103 and 0.118 v.;  $d\eta/dpH = 58$  mv. For pH values 10.18-12.20  $b = 0.114-0.120$  v. In the region pH = 10.18-11.50  $d\eta/dpH = 0$ . In the region pH = 11.50-12.2  $d\eta/dpH = 60$  mv. M. S. N.

S. V.  
Khristov, ST. G.

18

(The effect of the crystal structure on the hydrogen overvoltage of chromium. II. The hydrogen overvoltage of hexagonal chromium as compared to that of cubical chromium. St. G. Khristov and N. A. Pangarov (Chem. Technol. Inst., Sofia). *Abstr. rend. acad. bulgare sci.* 9, No. 4, 21-4 (1956) (in German); cf. C.A. 51, 16145c. — For pH 1.7-3.0 the  $\eta$  value in the equation  $\eta = a + b \log i$  is between 0.105 and 0.112 v.; for pH 11.2-12.2  $\eta = 0.100-0.110$  v.;  $d\eta/dpH$  acid 15 mv.;  $d\eta/dpH$  alk. 25 mv. The exptl. value of the const.  $b$  for hexagonal ( $\beta$ ) Cr is best explained by the slow discharge of the H ion. In cubic Cr in acid soln. the slow discharge of the H ion explains the change in  $\eta$ , whereas for  $\beta$  Cr the recombination mechanism is needed also. The theoretical explanation of the different values found is based (qualitatively) on many parameters.

Marian C. Neumann

Chislav, St. O.

18 27  
 The Influence of Crystal Structure on the Hydrogen Overvoltage of Chromium. St. O. Chislav and N. A. Pangarov (Z. Elektrochem., 1957, 61, (1), 113-121). — D.c.c. Cr was deposited from a bath contg. 150 g./l.  $\text{CrO}_3$ , 1-5 g./l.  $\text{H}_2\text{SO}_4$ , at 0.35 amp./cm.<sup>2</sup> and 45°C. and hexagonal Cr from 0.075 N- $\text{H}_2\text{SO}_4$ , 600 g./l.  $\text{CrO}_3$ , 32-4 g./l. sugar at 0.16 amp./cm.<sup>2</sup> and 18-5°C. Conditions for best reproducibility of overvoltage measurements were established. Not only the mechanism but also the value of the overvoltage differed for the two crystal forms. The differences are explained by the different adsorption characteristics of the cubic and hexagonal crystals. 34 ref.—E. A. B.

PM for

Chair Physical Chem. & Electrochem.  
 Chem. Tech. Inst., Sofia

AUTHOR: Khristov, St. G. SOV/20-125-1-38/67

TITLE: Quantum Mechanical Effects and Temperature Dependence of the Rate of Electrolytic Separation of Hydrogen and Deuterium (Kvantomekhanicheskiye efekty i temperaturaya zavisimost' skorosti elektroliticheskogo vydeleniya vodoroda i deyteriya)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 1, pp 143-146 (USSR)

ABSTRACT: Various considerations of other authors, which are shortly discussed, permit an indirect quantitative evaluation of the influence exercised by the tunneling effect upon the discharge of  $H_2O^+$  and  $D_2O^+$ , i.e. by investigating the temperature dependence of the current density by means of the Eckart barrier. The direct way would require knowledge of the accurate shape and size of the barrier. However, only a few exact data are available hereon: the barrier is not wider than the double layer ( $d \approx 1.5 \cdot 10^{-8}$  cm) and not higher than the experimental value  $E'$  of the activation energy. For practical reasons it is useful to employ the symmetrical Eckart barrier which can be represented by the potential function  $V(x) = 4E_0 e^{2\pi x/l} / (1 + e^{2\pi x/l})^2$ , where  $E_0$  denotes

Card 1/4

Quantum Mechanical Effects and Temperature Dependence of the Rate of Electrolytic Separation of Hydrogen and Deuterium

SOV/20-125-1-38/67

the height and  $\delta = 21$  the width of the basic line of the barrier. Also for the penetrability of this barrier an expression is written down. In order to determine whether an approximation of the actual barrier by the Eckart barrier may be justified, the author primarily computed the activation energy  $E'_{o,H}$  for numerous values of  $\delta$  and  $E_o$ . The values obtained were considerably smaller than the corresponding experimental values, both for a mercury cathode and other metals. According to these results the Eckart potential cannot be employed as an approximate formula for the shape of the barrier in the case of a discharge of  $H_3O^+$  on a mercury cathode. It is, however, suited to the determination of the indirect part played by the tunneling effect in this process. A table contains for three values of  $E_o$  those values of  $\delta$  at which  $E_o$  has one and the same value, i.e.  $1.48 \cdot 10^{-12}$  erg (21.3 kcal/mol). For the purpose of investigating the problem more precisely the author chose a barrier  $1.6 \cdot 10^{12}$  erg (23 kcal/mol) long, which is hardly affected by the tunneling

Card 2/4

SOV/20-125-1-38/67

Quantum Mechanical Effects and Temperature Dependence of the Rate of Electrolytic Separation of Hydrogen and Deuterium

effect. A diagram shows the dependence of the activation energy on the width of this barrier. Consequently, the experimental value of  $E'_{O,H}$  is obtained at  $\delta = 4.4$  to  $4.8 \text{ \AA}$ . The corresponding results of the computations of three different values of  $\delta$  are listed in a table. According to these and a few other data, an Eckart barrier  $1.6 \cdot 10^{-12} \text{ erg}$  long and  $4.6$  to  $4.8 \text{ \AA}$  wide for a discharge of  $H_3O^+$  and  $D_3O^+$  at  $\eta = 0$  is absolutely equivalent to a real barrier though this width is about three times larger than the thickness of the double layer. According to the data under review, the part played by the quantum mechanical effects of the penetration through the barrier and those of the reflection above the barrier is of great importance: virtually all particles exhibit a non-classical behavior. In the case of a real barrier the influence of the tunneling effect is probably not weaker but perhaps even stronger than in the case of the equivalent barrier. Further, the difference between the zero energies of  $H^+$  and  $D^+$  exerts but a weak influence also in this

Card 3/4



SOV/20-125-1-38/67

Quantum Mechanical Effects and Temperature Dependence of the Rate of Electrolytic Separation of Hydrogen and Deuterium

case. There are 1 figure, 4 tables, and 7 references, 3 of which are Soviet.

ASSOCIATION: Kafedra fizicheskoy khimii i elektrokhemii Khimiko-tekhnologicheskogo instituta Sofiya, Bolgariya (Chair of Physical Chemistry and Electrochemistry of the Institute of Chemical Technology, Sofia, Bulgaria)

PRESENTED: December 4, 1958, by P. A. Rebinder, Academician

SUBMITTED: September 10, 1958

Card 4/4

KHRISTOV, STEFEN G.

✓ The role of tunnel transfer of ions in the kinetics of electrode processes. Stefen G. Khristov, *J. Russ. Khim. Inst. Bulg. Acad. Sci.*, 203-204 (1960) (Russian and German summaries). The task was to show that the exptl. detd. dependence of the discharge c.d. on the overvoltage (at  $T (^{\circ}\text{K.}) = \text{const.}$ ) can be explained by a quantum-mech. consideration (after Gurney, CA 26, 4280) of the elementary process of transport of ions from the soln. to the electrode and vice versa. Apparently the geometric form of the potential barrier plays an essential role. There is also a temp. dependence of the discharge d. on the current at const. overvoltage. Closely connected with this problem is the detn. of the actual height of the potential barrier, which for the existence of the tunnel effect must be greater than the exptl. measured activation energy. The present computations regarding the relation between the discharge ds. of the tunnel, and those of the classical current show, that, at least for  $\text{H}^+$  and  $\text{D}^+$ , the tunnel effect must play a significant role in the width and height of the potential barrier, which are not such useful parameters for that mechanism as the actual dimensions on the barrier. However, the accurate detn. of the barrier parameters is of decisive importance for the soln. of the problem of the degree of participation of the tunnel effect in the electrode process. A quant. juxtaposition of the results of the present calcul. with the calculs. made in the classical manner, regarding the abs. velocity of the electrolytic sepn. of H, is difficult at present. The same is true of the quant. accordance with the measurements by Post and Hiskey (CA 45, 5046a), as well as the detn. of the sepn. factor of the H isotopes. However, the present theoretical considerations and expts. undoubtedly indicate that the tunnel passage of the lightest ions participates measurably in the kinetics of the electrode processes. Therefore, the kinetic equations for these processes must be formulated not in the classical way as by Erdey-Gruz and Volmer (CA 26, 1197), but approx. as described in the present work, based on quantum mechanics. 37 references.

A. Moskovic

4  
JRT(LRH)

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Dependence of the excess pressure of hydrogen on the crystal structure in chromium. I. Excess pressure of hydrogen on cubic chromium in weak acid and weak alkaline solutions. II. Excess pressure of hydrogen on hexagonal chromium; a comparison with the results from the cubic chromium. Izv Inst khim BAN 7:237-270 '60. (EEAI 10:9)

(Hydrogen) (Chromium) (Acids)

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✓ Application of the parabolic potential wave to the investigation of quantum effects in electrochemistry. St. G. Khristov (Chem. Technol. Inst., Sofia, Bulgaria). 2. *Electrochem.* 64, 840-8 (1960). The "porosity" of an unsym. parabolic potential wave, which is obtained by superposition of a linear potential on a sym. parabolic wave, was calcd. On the basis of 3 approximation methods, relatively simple formulas were derived. These formulas are said to be very suitable for the investigation of the role played by the tunnel effect in the kinetics of electrochem. processes.  
mik K. van Ipenburg

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Temperature dependence of the speed of processes from the quantum-mechanical point of view. Stefan G. Khristov (Chem.-Technol. Inst., Sofia, Bulgaria). Z. phys. Chem. (Leipzig) 214, 40-63 (1960). — The influence of variations of shape and dimensions of the potential threshold on the effective activation energy and on the effective preexponential factor in the equation for the speed of the transfer of heavy particles (atoms) through and over the threshold was examined as a temp. function. By aid of examples it is shown how the quantum effects can be detected and estd. Friedrich Epstein

3

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SC: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 1,  
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Godishnik bio 55 no.3:117-179 '60/'61. [publ. '62].

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Development and geographic distribution of beer production  
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Utilisation of wood scraps by hydrolyzation; photosynthesis. p. 9.  
(TEZHKA PROMISHLENOST. Vol. 4, No. 3, 1955)

SO: Monthly List of East European Accession, (EEAL), LC, Vol. 4, No. 9,  
Sept. 1955, Uncl.

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In the Bulgarian Heavy Industry, 3:8:Mar 55

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Tobacco and cotton stems as raw material for the cellulose and paper

industry. P. 31

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BULGARIA/Chemical Technology - Cellulose and Its Derivatives.  
Paper.

H-33

Abs Jour : Ref Zhur - Khimiya, No 24, 1958, 83797

Author : Khristov, Ts.

Inst : -

Title : Stem and Leaf Pulp of Certain Grass Families as a Raw  
Material for the Production of Cellulose Paper.

Orig Pub : Tekhnika (belg.), 1958, 7, No 1, 13-16.

Abstract : The absence of any essential difference in the anatomical structure and chemical composition (excluding lignin) of straw of *Phalaris bulbosa*, *Panicum virgatum* and *Elymis arenarius* as compared with the wheat straw and other Gramineae is pointed out. The lignin content is almost two-fold as that in straw sheat. The whole bulk (stems and leaves) from *P. bulbosa*, *P. virgatum* and *E. arenarius* can be ecompletely processed by the sulfate method into a cellulose suitable for the manufacture of paper.

Card 1/2

- 69 -

BULGARIA/Chemical Technology - Cellulose and Its Derivatives.  
Paper.

H-33

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000722330007-7

Abs Jour : Ref Zhur - Khimiya, No 24, 1958, 83797

The high content of lignin in the straw of these grass families causes no difficulties in their processing together with wheat straw into cellulose. The grass seeds are utilized for forage.

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35 no.4:154-155 '63.

KHRISTOV, Tsv.; DRAGANOVA, R.; STEFANOVA, Ant.

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Godishnik khim tekhn 6 no.1:75-95 '59 (Publ. '60)

KHRAISTOV, Tsv.; LITOVSKI, Zdr.

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neutral sulfite method. Khim i industriia 23 no.5:137-142 '61.

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Vol. 7, no. 5, 1958.

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Monthly Index of East European Accessions (IEAI) IC, Vol. 8, No. 1.  
Jan. 1959.



BULGARIA/Plant Physiology - Mineral Nutrition.

I.

Abs Jour : Ref Zhur - Biol., No 23, 1958, 104376

Author : Popov, I.D., and Khristov, V.

Inst : Bulgarian AS

Title : The Penetration of  $\text{Co}^{60}$  Into Wheat Seeds upon Soaking Them in a Solution.

Orig Pub : Dokl. Bulg. AN, 10, No 1, 73-76, 1957.

Abstract : Wheat seeds were soaked for 7 hours in a 0.02% solution of  $\text{CoCl}_2$  containing 20 curies of  $\text{Co}^{60}$ , and thereupon germinated on filter paper soaked in distilled water.  $\text{Co}^{60}$  penetrated the seeds chiefly through the seed bud and, to a much smaller extent, through the opposite end of the seed. Upon the germination of seeds  $\text{Co}^{60}$  migrated to the root of the germ plant, and the radioactivity of the stalk increased slightly. --- L.V. Romanov

Card 1/1

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SCIENCE

Periodical: IZVESTIYA. BULLETIN Vol. 8, 1957

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(COBALT, radioactive,  
in blood & CSF, eff. of exper. epileptiform seizures  
(Bul))  
(EPILEPSY, experimental,  
eff. on radiocobalt in blood & CSF (Bul))

ACC NR: AT6031504

SOURCE CODE: BU/2503/66/014/000/0027/0037

AUTHOR: Khristov, V.

ORG: none

TITLE: A study of the reacting sensitivity of a nuclear reactor and possibilities for measurement of the effective absorption cross sections in reactors with a hard neutron spectrum

SOURCE: Bulgarska akademiya na naukite. Fizicheski institut. Izvestiya na Fizicheskiya institut s ANEB, v. 14, 1966, 27-37

TOPIC TAGS: nuclear reactor technology, nuclear reactor, radiation sensitivity, absorption spectrum shift

ABSTRACT: In this paper the reacting sensitivity of an IRT nuclear reactor is determined and its dependence on the absorber position and the active zone configuration are established. The possibility of measuring effective cross sections of absorption by the static method of reactivity and by the spherical oscillatory method under fast neutron conditions (characteristic of the IRT reactor) has also been studied. Reactivity was measured by placing a round condmium absorber plate 19.6 mm in diameter, and 3  $\mu$  to 1 mm thick in the center of the reactor core while it was operating under exact critical conditions at small power (from 100W to 1 kW). The reactor was then

Card 1/2